

## CLAIMS

1. A method for canceling feedback in an acoustic system comprising a microphone, a signal path, a speaker, means for detecting presence of feedback between the speaker and the microphone and filter means for compensating at least partly a possible feedback signal, the method comprising:
- providing a LMS algorithm for generating filter coefficients;
  - where the LMS algorithm operates with a predetermined essentially level independent adaptation speed when feedback is not present, this representing a first mode,
  - where the LMS algorithm operates a level dependent adaptation speed when feedback is present, this representing a second mode;
  - where the means for detecting the presence of feedback is used to control the adaptation mode selection of the LMS algorithm and
  - where the feedback detection means comprises bandwidth detection means for determining the presence of a feedback signal.
2. A method according to claim 1, where the update rate for the LMS algorithm is determined by the long-term average denominator in the LMS update algorithm in the second mode.
3. A method according to claim 1 or 2, comprising using a highpass filter to prevent low-frequency signals from entering the LMS algorithm; where an additional feedback cancellation filter and a noise generator is used for providing low-frequency input for the LMS algorithm.
4. A method according to claim 1, where the stability of the signal determined as a feedback signal is analyzed.
5. A method according to claim 4, where the feedback analyzing comprises holding flag values from a number of succeeding time frames and comparing of these.

Lms - least Mean Squares

## 6. A hearing aid comprising :

- a microphone;
- a signal path;
- a amplifier;
- 5 - a speaker;
- means for detecting feedback between the speaker and the microphone;
- filter means for compensating at least partly a possible feedback signal;
- memory means including a LMS algorithm;
- 10 - means for shifting the adaptation mode of the LMS algorithm when feedback is detected, said means being controlled by the means for detecting feedback and
- means for updating the LMS algorithm by the long term denominator in the LMS algorithm;
- where the feedback detection means comprises bandwidth detection
- 15 means for determining the presence of a feedback signal.

## 7. A hearing aid according to claim 6, comprising stability detecting means for the feedback signal.